

QoS AND MOBILE TECHNOLOGIES

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CHAPTER 14

MANET ROUTING PROTOCOLS

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14.1 INTRODUCTION

This chapter discusses the basic part of ad hoc network. As it is known that VANET is a special kind of MANET and most of its characteristics are inherited from MANET. However, it must be understood that most of the protocols designed for MANET cannot be used directly in VANET. Firstly, the overall concept of MANET is presented and secondly, the routing protocols used are examined and discussed and lastly a number of possible schemes that used to connect MANET to the internet are reviewed.

Generally, it is understood that MANET is the self-organized and self-configured wireless network which does not depend on any infrastructure such as router or gateways. In this type of network a node acts as host as well as router. If the nodes are located outside the transmission range usually communications are taking place through multi hops. In MANET, the packets are transmitted in store-carry-forward method. Normally, if the node receives a packet it will check the destination address and check route policy to forward the packet or absorb it. Due to the random motion of the nodes in Ad-hoc network which make nodes movement unpredictable and cause the topology to change over the time, the nodes must be aware of the changes and the topology information should be updated periodically. Ad-hoc networks are completely autonomous and there is no need for any administration. However, they can be connected to an infrastructure so as to receive services such as Internet access.

14.2 MANET ROUTING PROTOCOL

When the routing protocol in MANET is designed, dynamic topology, limited network capacity, energy constrained nodes, variable wireless link quality, interference and selection of the route are some of the challenges found which need to be addressed[1].

In MANET, in order for the nodes to communicate, the source node must find the route to the destination node. However, frequent changes of network topology in MANET require nodes to update their information continuously. In addition, MANET network can be large (i.e. Military network) and makes the process of finding the route to the destination to involve a lot of overhead due to the high number of control packet